

REMARKS

Claims 45, 48, 49, and 52-62 are currently pending. The Examiner has found applicant's previous amendments and arguments persuasive, but has rendered them moot in view of new grounds of rejection.

In particular, Claims 45, 48, 49 and 52-62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harris et al., U.S. Patent Number 6,097,395, "Dynamic Selection of Lighting Coordinates in a Computer Graphics System." Applicant respectfully disagrees with such rejection in view of the remarks set forth hereinbelow.

In the present rejection, the Examiner admits that Harris fails to disclose the instruction set as claimed, which requires a "set on less than" instruction. The Examiner further cites the following excerpt from Harris to show that Harris discloses a clip coordinate of the vertex data to be transformed.

"As shown in FIG. 1B, if lighting is performed in object coordinates and the vertex data is not otherwise required to be transformed to eye coordinates, the vertex data can be transformed directly to clip coordinates 112 by multiplying the vertex data by a concatenation of the model view matrix (M) and projection matrix (P) 101. After clipping is performed, the vertex data is transformed to window coordinates 116 using the same process described above with respect to FIG. 1A." (see col. 5, line 67 - col. 6, line 8)

The Examiner continues by arguing that it would be obvious to one of ordinary skill in the art at the time of the invention to include a set on less than operation for the clipping performed by Harris to perform a dynamic determination by the user of a clipping operation associated with an instruction set.

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To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed.Cir.1991).

Applicant respectfully asserts that at least the first and third elements of the *prima facie* case of obviousness have not been met. First, because Harris specifically teaches away from the use of a programmable instruction set with a "set on less than" instruction, there is no motivation to modify the reference.

Specifically, anyone attempting to implement a graphics accelerator capable of clipping would be motivated to use traditional tools for accomplishing the same, not a "set on less than" instruction, as claimed by applicant. For example, one of ordinary skill would be motivated to use AND and OR tests involving Boolean masks calculated via the comparison of vertices and clip planes, not a programmable instruction set including a "set on less than" instruction. While theoretically possible, it would be frustrating to one of ordinary skill to attempt to use programmable instructions for clipping purposes.

Thus, the fact that Harris teaches a clipping operation simply does not, by itself, render as obvious the use of applicant's claimed "set on less than" instruction. If anything, the teaching of a clipping operation teaches away from applicant's claimed "set on less than" instruction.

Regarding the third element of the *prima facie* case of obviousness, Harris does not disclose, teach or suggest a "set on less than" instruction, and thus the reference fails to disclose all of the claim elements. Again, as set forth in applicant's previous response, the use of the claimed "set less than" operation/instruction is particularly advantageous in the specific art of hardware graphics accelerators, since it facilitates the execution of difficult single-instruction, multiple-data (SIMD)

branching in graphics environments, as well as other features. Simply nowhere in the prior art is there taught, disclosed, or suggested such a combination of features for fulfilling the foregoing objectives.

A notice of allowance or a specific showing of such claimed feature in combination with the remaining claim limitations is respectfully requested.

Still yet, applicant emphasizes that the Examiner's new rejection admits further deficiencies and inadequately shows applicant's claimed invention in the prior art. In particular, the Examiner argues that it would have been obvious to one of ordinary skill in the art to implement in the programming language of the dynamic light space selector of Harris applicant's claimed "move" instruction "to determine which coordinate system the model is being transformed into." The Examiner further argues that it would have been obvious to one of ordinary skill in the art to implement in the programming language of the dynamic light space selector of Harris applicant's claimed "load" instruction "to determine which coordinates systems are being used."

These assertions simply do not make sense in the context of a hardware graphics processor. For example, applicant's claimed "load" instruction is not traditionally used to "determine which coordinates systems are being used." Conventionally, an application program interface (API) assumes a coordinate system, and it is often irrelevant to the program as to which coordinate system is being used.

Instead, the "load" instruction is particularly beneficial for skinning purposes, and other advanced graphics features. Moreover, the "move" instruction is helpful for passing data from an input to an output without further processing, texgen operations, and other graphics-related techniques. Simply nowhere in the prior art is there such a combination of features for fulfilling the foregoing objectives.

In view of the above remarks, all of the independent claims (Claims 45, 48, 49, 52, and 53) are deemed allowable. By virtue of the dependence of the remaining claims on the foregoing

independent claims, such dependent claims are also deemed allowable. Again, a notice of allowance or a specific prior art showing is respectfully requested.

In the event a telephone conversation would expedite the prosecution of this application, the Examiner may reach the undersigned at (408) 505-5100. The Commissioner is authorized to charge any additional fees or credit any overpayment to Deposit Account No. 50-1351 (Order No. NVIDP021).

Respectfully submitted,

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